CLAIM AMENDMENTS:

1. (currently amended) A control method of an external control system fan clutch comprising:

providing a rotating shaft, a drive disk fixed to the rotating shaft body and a housing supported through a bearing on the rotating shaft, the housing having an interior, a partition plate in the housing and partitioning the interior into an oil reservoir chamber and a torque transmission chamber, said drive disk being in the torque transmission chamber, a torque transmission gap being defined between the drive disk and the housing at locations spaced outward from the rotating shaft, a dam arranged in one portion of an inner circumferential wall face of the housing opposed to an outer circumferential wall portion of the drive disk for collecting and reservoiring oil at a rotating time, an oil circulating flow passage through the partition plate inwardly of the torque transmission gap and a valve member comprising a spring material and having a magnetic property and being arranged within the oil reservoir chamber, the valve member having a fixed end at a radially inner position, a free end at a radially outer position, the free end being aligned for closing the oil circulating flow passage formed in the partition plate between the torque transmission chamber and the oil reservoir chamber; an armature between the fixed and the free end, an electromagnet ~~is~~ supported by said rotating shaft body through the bearing on the oil reservoir chamber side of said ~~sealing~~ housing, and ~~an~~ the electromagnet being aligned with the armature for controlling the opening and closing of the oil circulating flow passage;

utilizing a spring characteristic of the spring material of the valve member for biasing the valve member against the partition plate for keeping the oil circulating

flow passage in a normally closed condition while keeping the valve member substantially free of magnetic forces acting thereon;

detecting a plurality of signals including: temperature of cooling liquid of a radiator, a fan rotating speed, temperature of transmission oil, vehicle speed, engine rotating speed, pressure of a compressor of an air conditioner and a turning-on or a turning-off signal of the air conditioner for determining a desired rotational speed of the sealing housing;

selectively operating the electromagnet in response to detected signals indicating a need for an increased rotational speed of the housing for attracting the armature of the valve member and deflecting the valve member away from the partition plate for opening the oil circulating flow passage to permit a flow of oil through the oil circulating flow passage and radially outwardly into the torque transmission ~~clearance~~ gap between the drive disk and the housing to increase an effective contact area of the oil in the torque transmission ~~clearance~~ gap; and

selectively turning off the electromagnet in response to detected signals indicative of a requirement for a slower rotational speed of the housing so that the valve member is substantially free of magnetic forces and is biased into the normally closed condition by the spring material for controlling rotating torque transmission from a drive side to a driven side by increasing and decreasing an effective contact area of the oil in the torque transmission ~~clearance~~ gap,

wherein the selectively operating and turning off the electromagnet is controlled in response to a deviation calculated between the determined desired rotational speed of the housing and the actual fan rotating speed.

2. (previously presented) The control method of the external control type fan clutch according to claim 1, wherein a magnetic material of a ring shape is arranged between said electromagnet and the valve member, and is constructed by assembling the magnetic material into the housing so as to transmit a magnetic flux of the electromagnet to the valve member through the magnetic material.

3. (currently amended) A control method of an external control system fan clutch comprising:

providing on a rotating shaft, a drive disk fixed to the rotating shaft body and a housing supported through a bearing on the rotating shaft, the housing having an interior, a partition plate in the housing and partitioning the interior into an oil reservoir chamber and a torque transmission chamber, said drive disk being in the torque transmission chamber, a torque transmission gap being defined between the drive disk and the housing at locations spaced outward from the rotating shaft, a dam arranged in one portion of an inner circumferential wall face of the housing opposed to an outer circumferential wall portion of the drive disk for collecting and reservoiring oil at a rotating time, an oil circulating flow passage through the partition plate inwardly of the torque transmission gap and a valve member comprising a spring material and having a magnetic property and being arranged within the oil reservoir chamber, the valve member having a fixed end at a radially inner position, a free end at a radially outer position, the free end being aligned for closing the oil circulating flow passage formed in the partition plate between the torque transmission chamber and the oil reservoir chamber; an armature between the fixed and the free end, an electromagnet ~~is~~ supported by said rotating shaft body through the bearing on the oil reservoir chamber

side of said ~~sealing~~ housing, and ~~an~~ the electromagnet being aligned with the armature for controlling the opening and closing of the oil circulating flow passage;

utilizing a spring characteristic of the spring material of the valve member for biasing the valve member against the partition plate for keeping the oil circulating flow passage in a normally closed condition while keeping the valve member substantially free of magnetic forces acting thereon;

selectively operating the electromagnet in response to detected signals indicating a need for an increased rotational speed of the housing for attracting the valve member and deflecting the valve member away from the partition plate for opening the oil circulating flow passage to permit a flow of oil into the torque transmission ~~clearance~~ gap between the drive disk and the sealing housing to increase an effective contact area of the oil in the torque transmission ~~clearance~~ gap; and

selectively turning off the electromagnet in response to detected signals indicative of the requirement for a slower rotational speed of the housing so that the valve member is substantially free of magnetic forces and is biased into the normally closed condition by the spring material for controlling rotating torque transmission from a drive side to a driven side by increasing and decreasing an effective contact area of the oil in the torque transmission ~~clearance~~ gap; wherein the operation of the electromagnet for opening the oil circulating flow passage and a turning-off of the electromagnet so that the spring material biases the valve member against the partition plate for closing the oil circulating flow passage are controlled via a fan rotating speed control signal to control the fan rotating speed so that an upper limit rotating speed is set lower than a turning-on rotating speed with respect to an optimum fan rotating speed

required from the engine side during normal operation~~; a fan rotating speed control signal is temporarily stopped on the basis of the differential speeds between an engine rotating speed, the fan rotating speed and said optimum fan rotating speed; the fan rotating speed control signal is temporarily stopped on the basis of an engine rotating acceleration or an accelerator (throttle) position acceleration; or a limit is given to a changing rate of the optimum fan rotating speed on the basis of the changing rate of said optimum fan rotating speed~~, whereby a response delay with respect to the fan rotating speed control signal of a next timing can be shortened and the associative rotation at the engine rotation changing time and the engine starting time can be reduced.

4. (previously presented) The control method of the external control type fan clutch according to claim 3, wherein a magnetic material of a ring shape is arranged between said electromagnet and the valve member, and is constructed by assembling the magnetic material into the housing so as to transmit a magnetic flux of the electromagnet to the valve member through the magnetic material.

5. (previously presented) The control method of the external control type fan clutch according to claim 3, wherein the step of selectively operating the electromagnet in response to signal indicating a need for an increase rotational speed of the sealing housing comprises detecting a plurality of signal including: temperature of cooling liquid of a radiator, a fan rotating speed, temperature of transmission oil, vehicle speed, engine rotating speed, pressure of a compressor of an air conditioner and a turning-on or a turning-off signal of the air conditioner for determining a desired rotational speed of the sealing housing.

6. (new) The control method of the external control type fan clutch according to claim 1, wherein a valve opening-closing control signal is calculated on the basis of the deviation, wherein the valve opening-closing control signal selectively operates and turns off the electromagnet.

7. (new) The control method of the external control type fan clutch according to claim 6, wherein the fan rotating speed is controlled to the determined desired rotational speed of the housing with an on-off rate of a power voltage to the electromagnet as the valve opening-closing control signal.

8. (new) The control method of the external control type fan clutch according to claim 6, wherein the fan rotating speed is controlled to the determined desired rotational speed of the housing with an on-off frequency of a power voltage to the electromagnet as the valve opening-closing control signal.

9. (new) The control method of the external control type fan clutch according to claim 6, wherein the fan rotating speed is controlled to the determined desired rotational speed of the housing with an electric power amount of a power source to the electromagnet as the valve opening-closing control signal.

10. (new) The control method of the external control type fan clutch according to claim 3, wherein the fan rotation control signal is temporarily stopped when a differential speed between the engine rotating speed and the fan rotating speed is smaller than a predetermined differential speed.

11. (new) The control method of the external control type fan clutch according to claim 3, wherein the fan rotation control signal is temporarily stopped when a differential speed between the engine rotating speed and the optimum fan rotating

speed is smaller than a predetermined differential speed and the fan rotating speed is larger than the optimum fan rotating speed.

12. (new) The control method of the external control type fan clutch according to claim 3, wherein the fan rotating speed control signal is stopped when the engine rotating acceleration becomes greater than a predetermined value.

13. (new) The control method of the external control type fan clutch according to claim 3, wherein the fan rotating speed control signal is stopped when the accelerator (throttle) position acceleration becomes greater than a predetermined value.

14. (new) The control method of the external control type fan clutch according to claim 3, wherein a limit is given to a changing rate of the optimum fan rotating speed on the basis of the changing rate of said optimum fan rotating speed.